

sugar maple stump was infected from the butternut. The black ash log lies about one fourth of a mile north of the butternut, over one hill.

In the north part of the village of Ballston Spa, on the trunk of some cultivated willow, July 20, 1912, was seen from the railroad coach, what appeared to be punks of *Polyporus admirabilis*. Possibly, if this had been examined, it would have been similar to *Polyporus Underwoodii* found by Dr. H. J. Banker, Aug. 27, 1908, at Schaghticoke, Rensselaer county.

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SHORTER NOTES

A NOTE ON PRESERVATIVES FOR ALGAE. In *The Plant World* for August, 1913, is an article by Gilbert Morgan Smith, of the University of Wisconsin, on "The Preservation of Fresh Water Chlorophyceae." Among the preservatives recommended is Amann's lacto-phenol-copper solution, and there are given also the results of tests conducted by himself and others as to plasmolysis and coloration. He also gives suggestions as to the amounts which had produced better results with certain algae.

Finding it necessary to make my collection as stable as possible I made use of this solution, putting various algae into it, using as suggested liberal amounts of the solution. I also made a few tests using copper nitrate instead of copper chloride in the solution. The material in the solutions showed little change during periods of one month, two months, or ten weeks. At the three-months' examination, some of the algae showed signs of plasmolysis. After nine months I find that the following results have attended the use of these preservatives:

Copper-Nitrate-lacto-phenol

- 10 per cent, *Vaucheria*, color good, no plasmolysis
- 5 per cent, *Vaucheria*, color good, some plasmolysis
- 10 per cent, *Spirogyra*, completely plasmolyzed and browned
- 5 per cent, *Spirogyra*, completely plasmolyzed and browned
- 10 per cent, *Tetraspora*, kept well in every case
- 5 per cent, *Tetraspora*, kept well in every case

Diatoms in each strength of preservative were green in color but kept well. Various other algae kept poorly; such as *Zygnema*, *Stigeoclonium*, *Cladophora*, etc.

Copper Chloride-lacto-phenol

In the weaker solutions, but in greater amounts in proportion to the algae, the results were more satisfactory as to plasmolysis, but not so good as to color. In the stronger solutions, the color is fine but the plasmolysis has rendered the algae unusable.

Out of over sixty specimens I have been obliged to throw out more than forty, as I used more of the stronger solution in preserving. Perhaps the difference in water in the two regions might have some effect on the preserving of such material in such media, as in most cases my results tally very indifferently with those of Smith and his associates. To any one making collections of algae I would suggest considerable experimentation before trusting completely in these preservatives.

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REVIEWS

Piper and Beattie's Flora of the Northwest Coast*

One of the most pleasing local floras, both as to contents and as to appearance, is Piper & Beattie's Flora of the Northwest Coast, which appeared in the latter part of 1915. The area covered by the work is the region west of the summit of the Cascade Mountains in the states of Washington, and the northern half of Oregon. This region together with a small part of British Columbia constitutes a very natural area. The southern part of Oregon west of the Cascades, comprising the Umpaqua and Rogue River basins, is left out, as in this region the flora of northern California becomes more and more prevalent. The flora is made up of 1,617 species and subspecies of flowering plants and fernworts, representing 550 genera and 100 families. As the

* Flora of the Northwest Coast, by Charles V. Piper and R. Kent Beattie, published by the authors and issued by the New Era Printing Company, Lancaster, Pennsylvania, November 10, 1915.